

# Dvorak Developments

Dvorak Developments #48 (Volume 14, #2) -- Winter 1986

## Dvorak Helped Me Overcome Dyslexia

by Charlie Metcalfe

When team members were chosen for school games, I was always last. I was never able to hit a baseball, and could only rarely catch one. My eyes saw it coming, but my brain and muscles moved my hand to the wrong places or closed my fingers at the wrong times. But as I became an adult, the skill that most eluded me was the simple act of writing. Try as I might, the words I could shape looked (and still look) crude and childlike. Often my hands would form letters that were quite different from the ones my brain was trying to write, and would repeat the exact same errors through two or three corrections in the same word.

In my forties, I read an article about dyslexia. The typical meaning of the word is "reading difficulty". By that narrow definition, I do not suffer from dyslexia -- reading is the one thing I do with ease and pleasure. However, the other handicaps of dyslexics are accurate descriptions of the disabilities I have endured all my life. Somehow I felt a little

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better just knowing that my problems were not unique, that they were recognized and named, even if improperly. I now call my condition "writing dyslexia".

Long before I learned that I had a recognized condition, I had managed to make adjustments and to achieve a normal life. During World War II, while I was in high school, I became an announcer at a major radio station and was later a station manager. I made the Dean's List and graduated from college. For 20 years I worked in television as an engineer, director, and production manager. In 1970, I became self-employed as a film and video producer. Lately, I have had some success as an interviewer.

In these endeavors I never felt dumb, but I was always aware that my feeling of self worth was harmed by my writing difficulties. I sought ego gratification substitutes. I became a member of Mensa. It made me feel brighter, but it gave me no help with the writing problem. By age 55, I had probably written no more than a dozen letters in my life, and little other material of consequence.

A cheap Commodore computer changed my life! I bought it only to learn something about computers, but that was not its greatest benefit. A programming course had a bonus typing program on one cassette. It was called "Speedtype" and it used a sentence generator to create phrases from a word list. I spent many hours happily typing things like "The fat queen stole the moldy wine noisily" and "Vanessa escaped quickly without any fuss". The computer keyboard itself was surprisingly good, though the terrible

Qwerty layout made learning difficult. Still, with each hour of practice, I got better. Soon my speed and accuracy could be described as "poor", but that was a great improvement. It was wonderful to be able to make the right letters appear on the screen most of the time.

Next came my first word processing program. The program took six minutes to load from a cassette. As the writing got longer, the program got slower, sometime pausing for reorganization, leaving the keyboard dead for 15 seconds at a time. At times, I could type faster than it could process. I still made many errors, but I could fix them! Never before had I been able to create written expressions that I was not ashamed of.

By 1986, I had advanced to a new word processing program, "SpeedScript". Then I had the good fortune to notice a small ad for an enhancement that added features to the program, Upstart Publishing's "/Speedpak/". It added a lot to SpeedScript, but best of all, it included a Dvorak keyboard that one could toggle in or out at the touch of a key.

I was now presented with a dilemma: to leave well enough alone or to unlearn Qwerty and learn Dvorak. I bit the bullet. I found a typing tutor disk with four Dvorak lessons (and 20 Qwerty lessons) and went to work. I went to the public library seeking books on Dvorak. They didn't have any, but I did find and copy many magazine articles. But looking at diagrams is of small value compared to the exquisite delight of true discovery. The marvelous ease of being able to type the most-used words without even moving from the home row. The joy of typing the word "the", an arrangement so elegant in its simplicity that I soon knew that there was no longer a dilemma. I had to learn Dvorak.

For me, learning Dvorak was easy. Unlearning Qwerty was not. What advice would I give to others? Don't ever start smoking and you won't have to break the habit. For the same reason, don't ever start typing Qwerty. Learning Qwerty was hard. Learning Dvorak was easy, but learning it as the first and only keyboard would have been far easier. Nevertheless, if you do have a bad habit, whether it's smoking or Qwerty, give it up now and change for the better.

While I was in the second grade, struggling to write, Dr. Dvorak was developing a keyboard that would help me in my 59th year. A keyboard so easy to use that a small part of my mind is learning to handle it without bothering my thought process. I am not sure just when it happened, but gradually I have become aware that the phrases thought up by my dyslexic brain often appear as if by magic on the screen of my computer, without my having made any conscious effort to think in specific terms of the actual letters, of moving my fingers, or of where the keys are.

Imagine what this new ability has done for my sense of self worth! I no longer avoid writing letters. I actually enjoy the time I spend at my keyboard. Writing has become more than just mental stimulation; the tactile contact of my fingers on the keys contributes to a feeling of physical pleasure.

As I get older, and as my film and video equipment seems heavier, I ponder that perhaps writing could become a new career for me -- all I need is something interesting to write about. Charles Kuralt recently had a program about a special school for dyslexic children. One scene showed typing being taught on a computer -- on a Qwerty keyboard. How awful! Maybe I should write the school a letter...

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*Charlie Metcalfe is a freelance film and video producer and has won awards for his TV commercials and films. He spends his time in Birmingham, Alabama and Arden, North Carolina.*

## Letters

### QED Responds

I was pleased to read Bob Nelson's review of *Typing Made Easy*. It's a well done review. As you reported in *Dvorak Developments* (Summer 1986), Aetna Life and Casualty Insurance Company teaches people to touch type 25 WPM in an average of 14 hours. Typing Made Easy and the Dvorak keyboard has shortened the learning cycle dramatically.

One more point. There is a definite reason to teach people to use the <Return> key. This key is continually used on a personal computer to enter data and short lines on a word processor. It makes no sense to teach keyboarding without teaching mastery of the complete keyboard. Once you learn it, you can work on any PC or typewriter with equal ease.

Edwin F. Kerr  
Executive Vice President  
QED Information Sciences, Inc.

*Bob Nelson, a writer who lives in Arcata (where DvDv used to be located), has indeed done a good job with the Product Overviews in Dvorak Developments. He'll have some more writings for us soon.*

*I must agree with his review, though. Forcing the use of the <Return> key is needless, and flaws the otherwise very good setup of TME. As you said, "this key is continually used" on a computer, so most users are already quite practiced in its use. But Bob covered the issue well in the review: "It would be nice if the program allowed you to choose whether or not the return key was needed at the end of a line", he said. That would be the ideal solution: let the user decide.*

### Finding Dvorak Employers

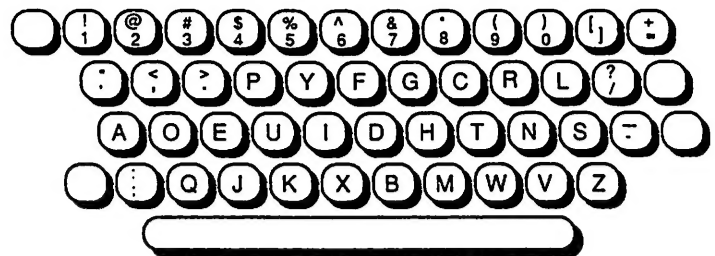
I do word processing on my Apple IIc, which utilizes the Dvorak keyboard. But I am unable to locate any companies which employ people who type on a Dvorak keyboard. I live in the Los Angeles area. Could your newsletter help me find an employer?

Larry Woodcock  
Hermosa Beach, CA

*You don't need us to find an employer. You have a skill word processing ability -- and the keyboard you use only helps you with that skill. Just apply for any word processing position. When you tell them you can only type, say, 30 WPM on Qwerty but 60 WPM on Dvorak, they should have no objection to your using Dvorak. Be sure to tell them that Dvorak typists are also more accurate than Qwerty typists.*

*Most companies now use IBM PCs (or clones) for word processing. These computers are the easiest to convert, and have the most products available for them. If the company you work for is not willing to provide you with a Dvorak keyboard (\$150 for a PC) or conversion software (\$30-60), then it would probably be a good investment to buy it for yourself and take it to work with you.*

*Since the IIc is a portable computer, you can even take it along with you when you interview for a job. A demonstration of the Dvorak is very convincing.*



Dvorak Keyboard  
Conforms to ANSI Standards

Letters should be addressed to Randy Cassingham, Editor, **Dvorak Developments**, PO Box 1895, Upland CA 91785. While not all letters can be personally answered, the most interesting will be printed here after being edited for length and clarity.

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**Dvorak Developments** . . . . . ISSN 0743-4200

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Published Quarterly (Winter, Spring, Summer and Fall)  
by Freelance Communications, PO Box 1895, Upland  
CA 91785.

Subscriptions: \$12.00 per year in North America (for foreign addresses, add \$4.00 per year for special handling and air mail delivery. Payment must be made in U.S. funds. Please: make checks payable to Freelance Communications.

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# The Dvorak Keyboard

"This is one of the most fascinating books I've had the pleasure to read lately. Cassingham really did his research on this book. The detailed appendix with its listing of the many products available that support the keyboard is worth the price of the book in itself." — *Mark Nolan, Information Marketing newsletter*

"This book will help to answer the basic questions frequently asked about the Dvorak keyboard." — *Virginia Russell, President, Dvorak International Federation*

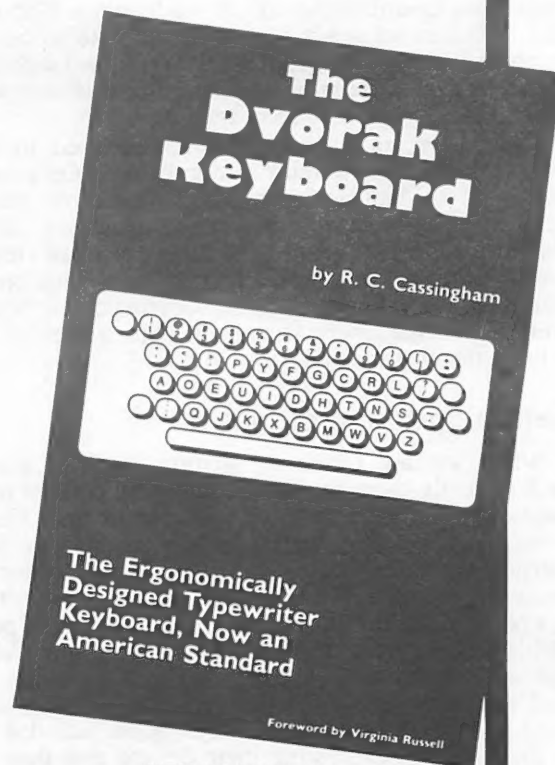
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- ✓ Proof of Dvorak's superiority over Qwerty
- ✓ The many factors that allowed Qwerty to become entrenched as the 'standard' keyboard, and why it took until now for Dvorak to become popular
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## From the Editor's Keyboard

by Randy Cassingham

I'm especially proud of the lead article in this edition. The issue of aid to the handicapped is certainly getting a lot of press lately, but it is often along the lines of "what can be done for them". People don't want things done for them -- they want to learn how to do things for themselves. Charlie Metcalfe is a good case in point. For 50 years, he didn't communicate in writing because it was so difficult for him. Obviously, he has the intelligence and ability to communicate very effectively -- he just had to be shown the proper tool. With the Dvorak, he was able to forget about how to type and concentrate on *what* he was typing -- clearly the smart way to go.

There's a good lesson for others here. If the tool you use for a job is poor, you don't stop doing the job, you get a new tool. Qwerty is a bad tool. It is difficult to learn (remember your high school typing classes?) and, once it is mastered, is still terribly awkward to use.

The computer is the great equalizer. Everyone has a handicap when they use computers -- all PCs have keyboards. A lot of people who never had to type are suddenly expected to be able to when a computer is dropped on their desks. White collar workers, who used to rely on secretaries to do the dirty work of keyboarding, must now run their own computers. And that's one of the big reasons the Dvorak keyboard is taking off today (see, for instance, "AETna Managers are Learning Dvorak" in the Summer 1985 issue of *DvDv*). Executives don't have a lot of time to be wasted learning an awkward keyboard arrangement, and with Dvorak, they don't have to. Non-typists can be comfortable with the Dvorak after only a few hours of training.

Computers are allowing the handicapped to fit into society in a way they weren't able to before. On a computer "forum", "CB simulator", or other interactive multi-user system, all users have the same handicap: all must communicate via a keyboard. The other users can't tell if you are deaf, or in bed or a wheelchair, or only have one hand. Indeed, with Dvorak, you might be communicating better than the others -- faster, more accurately, with less effort. Then who is the one that is disabled?

### It gets bigger and bigger...

While we are constantly getting inquiries about the Dvorak, recently there has been a subtle but definite upswing in interest in the keyboard. A few months ago, *Compute!* magazine ran a letter from a reader asking for help in converting his Commodore 64 to Dvorak; the editor didn't know of any products. So I wrote to the editor and offered to send a copy of *Dvorak Developments* and a listing of products available to convert computers to Dvorak to any *Compute!* reader who sent a self-addressed, stamped envelope. They printed my letter, and more than 100 SASEs have come in already -- from as far away as Italy. Most included a note with their request expressing their delight that they finally found a source of Dvorak information. There seem to be thousands out there that think they're the only ones using Dvorak.

The more than 28,000-member strong Professional Secretaries International considers information about the Dvorak "vital" to their members, so they negotiated with Freelance Communications to run an excerpt of *The Dvorak*

*Keyboard* in the November/December issue of their journal, *The Secretary*. I've seen (and written) a lot of articles about the Dvorak, and (if I may say so) this is one of the most extensive pieces on the keyboard in several years.

PSI's journal, which is distributed to about as many non-members as members, is read by people who do a *lot* of typing. While their bosses enjoy the increased productivity that Dvorak brings, the secretaries -- and others who do a lot of typing -- benefit quite a bit also. Even with greater output, Dvorak typists are less tired at the end of the day. Their error rate is reduced with the newer keyboard (which is one of the reasons productivity rises), so the frustration some typists feel is lessened. Everybody wins.

### It gets easier and easier...

Getting Dvorak-capable equipment continues to be less and less of a problem. Computers, especially IBMs, are extremely easy to convert to Dvorak. With the Silver Reed EZ 50 typewriter as a harbinger of things to come, electronic typewriters can easily be programmed to have both Qwerty and Dvorak layouts available at a touch. No, the problem isn't equipment, it's fear.

Typists fear changing to Dvorak because they remember how hard it was to learn to type in the first place. Naturally, it was so hard because of the difficulty in learning on the Qwerty keyboard, but the fear is real. It's an unfounded fear, though, since most of the skills typists have learned are used no matter what keyboard you use. The physical skills are not wasted by converting to a new layout. Indeed, Qwerty typists are actually physically *overtrained* because of the gymnastics required by its inefficient arrangement.

While I don't believe that typists should be forced to switch, it would be great if all typists could be given the *facts* about keyboarding. I think if people try Dvorak, they won't want to go back to Qwerty. I haven't yet heard of a case where someone gave Dvorak a good try and switched back voluntarily. I have heard, though, of many who demand to be supplied with Dvorak keyboards when they go to a new job (and many who carry conversion software or replacement keyboards for computers with them from job to job).

And -- by the way -- if you've seen items in some magazines saying that the Silver Reed EZ 30 typewriter has Dvorak (in addition to the EZ 50), it's *not true*; they have bad information. Only the EZ 50 has Dvorak capability as of now. But it may be coming to other Silver Reed models in the future since Silver Reed is seeing a definite interest in the EZ 50's built-in Dvorak layout.

### Spreading the Word

Freelance Communications has just released its newest Dvorak product: "Dvorak PC". Dvorak PC is an informational program that runs on all PC- and MS-DOS computers (IBMs and the like). It gives an interesting introduction to Dvorak keyboard use on computers and is being distributed *free* all over the country.

If you have a PC with a modem, you can download Dvorak PC from many private computer "bulletin boards" or from the IBM Hardware Forum on the CompuServe Information Service (GO IBMHW). If you can't find a free copy (or you don't have a modem), send \$5.00 (for the cost of the disk, duplication, and shipping) to Freelance Communications and we'll send you one.



## Product Overviews

Product overviews are detailed descriptions of Dvorak-related products. The regular "for sale" version of the product is tested, then described in full so that readers can make intelligent choices on what products fit their needs. Opinions expressed in the overview are those of the author.

### DV Typer: Dvorak on the Commodore 64

by Curt Cassingham

**Description:** Dvorak conversion hardware for the Commodore 64. Includes internal card, keyboard overlays. \$36.95.

**Supplier:** Prelco, 14202 Galy Street, Tustin CA 92680, (714) 544-3041.

**Machine used for test:** Commodore 64 and 1541 disk drive.

The Commodore 64 is one of the most popular computers on the market and, because of its low cost, the main "first computer" for kids. Prelco has brought Dvorak to these machines with "DV Switcher", a special ROM (Read Only Memory) upgrade which allows you to switch between Qwerty and Dvorak.

The kit comes with the ROM mounted on a small circuit board with a switch to choose between Dvorak and Qwerty, installation and operating instructions, and keytop overlays. As an option, DV Switcher can be ordered with a special custom powerup screen message and special border, background or text colors.

Most C64's come with the larger chips in sockets, so installation is simple. There are three screws that secure the cover. Once it's opened, a stiff foil shield is moved and the

"It follows the ANSI standard Dvorak layout as best as possible with the C64's hardware limitations."

keyboard and pilot lamp connectors are unplugged. It's an easy task to locate and remove the "Kernal" ROM, which is the chip that handles input and output for the computer. The DV Switcher card goes into that socket and the switch wire routed out one of the several openings in the back of the computer. A hole can optionally be drilled for the switch. The original ROM is replaced into a socket on the DV Switcher card. The assembly is almost too thick to fit inside the case, but it *does* fit. The foil shield is replaced, connectors reconnected, case closed, and the hardware modification is

*Curt Cassingham has very extensive experience with electronics and converting various computers to Dvorak. He lives in Portland, Oregon.*

### MacQwerty - \$35

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complete. If your 64 is an older one (like mine), the Kernal ROM must be unsoldered and a socket installed first -- not an operation for the faint-hearted. There are usually plenty of computer technicians that would be glad to assist (for a fee) in installation in this case. Your local Commodore user group will know who and where they are. If you can't find one, you can send your computer to Prelco for the installation.

The keytop overlays included in the package take a little patience. The manual is apologetic for them not being pre cut in the shape of the keytops, but with a little patience, an X-Acto knife and a small scissors, their installation isn't really a big deal. I agree with the manual on this point: you only have to do it once, and we pioneers must suffer a little!

DV Switcher follows the ANSI standard Dvorak layout as best as possible with the C64's hardware limitations. Most of the graphic characters (that are produced by SHIFTed letters or the "C=" option key plus a letter) were moved along with their letter keys to the Dvorak location. Pressing SHIFT and RUN-STOP toggles to lower case.

The upgrade works with all non-machine language BASIC programs I tried, including a 96 disk-block-long accounting program and even, happily, "Paper Clip", my favorite C64 word processor. However, it seems that some machine language programs so completely take over the computer they make the keyboard revert to Qwerty. Programs I found that won't work in the Dvorak mode include "Zork" and CompuServe's "Vidtex" communications software.

Another compatibility problem I had was with my previously installed "1541 Flash!" from Skyles Electric Works. The Flash! speeds up the relatively slow Commodore 1541 disk drive by several times, but it too uses a piggybacked Kernal system to accomplish this, and no combination of all three chips would work completely enough to be satisfactory. For fast disk access, I also tried DV Switcher with Epyx's Fast Load cartridge, but its firmware also conflicted with the Dvorak upgrade. If you don't use a disk drive or have other special hardware-based enhancements, you should not encounter these difficulties.

I was happy with everything about DV Switcher, although it didn't work with my particular setup. The C64's operating system is in its hardware, so software-based Dvorak patches are often overlayed by a program that moves memory around -- DV Switcher gets around those problems. My hardware setup is unique, though, so I think this is definitely the best way I've seen to convert to Dvorak on the Commodore 64.

## A Look Back

by Randy Cassingham

On May 12, 1978, the Dvorak International Federation was born in Salem, Oregon. They published a newsletter for a while, and I recently got copies of them from an early member, Mr. Belmont Adams. Over the next year or so, *Dvorak Developments* will reprint some of the interesting items from those early newsletters. In this issue we reprint from the very first DIF newsletter, which came out at the end of 1978.

## History of DIF

by Lou Ellen Weld

Dvorak International Federation began with a small group of interested, enthused individuals who wanted to see use of the Dvorak keyboard spread throughout the keyboarding world. The first organizational meeting was held May 12, 1978, and had a total of five individuals present. Chris Christensen, State of Oregon Executive Department; Thurman Clark, State of Oregon Employees Retirement System; Ethyl Hanson, instructor at Portland Community College; Helen Baldwin, Employee Benefits Insurance; and Lou Ellen Weld, Oregon Department of Revenue, met to discuss the formation of an organization to promote Dvorak keyboarding. Guiding the group was Brad Lessley from Oregon State University, who had recently completed his comprehensive doctoral dissertation on Dvorak keyboard retraining. It was at that meeting the organizational structure was formalized, and the name Dvorak International Federation and the slogan "DIF Makes the Difference" was coined.

Drafting of a constitution was begun and was signed on August 23, 1978; officers were elected in May of 1978. Helen Baldwin, President; Thurman Clark, Vice-President; and Lou Ellen Weld, Secretary-Treasurer were elected officers of the Federation.

Since the inception of DIF, the members have been busy preparing a mail-out for a membership drive, determining membership fees, investigating a DIF certificate for trained typists, gathering information from organizations already using Dvorak, etc. Letters from interested people throughout the United States and five foreign countries who want to know more about Dvorak keyboarding have been received and answered. All of the work has been done on a volunteer basis.

Membership in DIF, without a great deal of publicity, has climbed from the original five members to over 25 members. Requests to form associate chapters have been received from California, Australia and England. It is apparent from the interest shown already there are many individuals who support the concept of the Dvorak keyboard. Until now, there has been no organization with the power to influence the keyboarding world. DIF's goal is to eventually self destruct. But until that time comes, there is much work ahead.

## Dvorak at EBI

by Lynette Brown and Helen Baldwin

Until the manager of the word processing center at Employee Benefits Insurance Companies (EBI) read about Dvorak in the Willamette Valley [Oregon] chapter of International Word Processing newsletter, no one in the center had ever dreamed of retraining on another keyboard.

The manager approached Brad Lessley to inquire about retraining procedures and then received support from management to start retraining. We began training with one operator from each shift -- this was so that we would not disrupt the productivity of the center. After approximately 15 hours of learning the keyboard, the operators often had a tendency toward frustration as the Qwerty keyboard and the Dvorak keyboard interfered with each other. It is at this point that the trainee needs to be encouraged to keep a positive attitude; this can make the transition period much smoother. After another 10 hours of training on Dvorak, it becomes the dominant keyboard. At the 40 hour level, we found that most trainees were typing approximately 40-50 words per minute and had passed the transition period and were feeling positive about the new keyboard.

A log of actual keyboarding time was maintained and after each 10 hours, a three minute time writing test and a 300 word productivity test were given. These tests showed increases in typing speed and accuracy. In some areas there are Dvorak typists who have surpassed their Qwerty speed by 50 percent. With such increases in speed, accuracy and productivity, Dvorak typists will certainly be in demand. In this modern, computerized world, everything is based on speed and quality of production. A Dvorak typist has both of these fine qualities to offer.

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## Product Alerts

**Faultline Micro**, PO Box 3147, Fullerton CA 92634, (714) 526-5055, has announced that they are cutting the price of their Dvorak conversion kits for the Apple IIe in half. The complete ROM conversion package is now \$21.95; their keyboard overlays are \$10.50.

**QED Information Sciences, Inc.**, PO Box 181, Wesslesley MA 02181, (800) 343-4848, has introduced "Typing Skill Builder", a companion product to accompany their "Typing Made Easy" tutorial program for the IBM PC, which was reviewed in the last issue. The Skill Builder picks up where TME left off -- with 104 paragraphs for extra practice on typing "real" text. At the end of a specific user-specified time, the program analyzes your typing skill. While not exactly a Dvorak product, this program does significantly enhance their Dvorak-specific TME program. Skill Builder, like TME, retails for \$59.95; they are available together for \$99.95.

## Back Issues

+ **Spring 1986.** Silver Reed to introduce Dvorak machines. Virginia Russell's column on Repetitive Strain Injuries and keyboarding. Report on the controversy brewing over the issue of finger travel. Listings of 4 new Dvorak products. Product overviews on *MacQwerty* (conversion program for the Macintosh), *Hooleon Overlays* (keyboard overlays), *Superkey* (keyboard macro/redefinition software for IBM), the *Maxi-Switch* keyboard (replacement keyboard for IBM), and *Keyboard Cadet* (typing tutorial program). 5 bibliographic entries. 8 pages.

+ **Summer 1986.** Aetna managers learning Dvorak. Virginia Russell's column on Dvorak one-handed keyboards. Randy Cassingham's column on the increased interest in the Dvorak from many sectors. Information on the telephone company's use of Dvorak. Profile on Dvorak speed demon Barbara Blackburn. Product overview on *SmartKey* (keyboard macro/redefinition software for IBM). 4 bibliographic entries. 8 pages.

+ **Fall 1986.** Randy Cassingham's column on the Silver Reed EZ 50 Dvorak-capable typewriter and editorial on how some companies don't promote their product's Dvorak capabilities. Product overviews on *Keyboard Master* and *Typing Made Easy* (typing tutorial programs). Listings of 2 new Dvorak products. 2 bibliographic entries. 8 pages. Very limited supply.

Back issues are \$2 each, postage included. Order from Freelance Communications, PO Box 1895, Upland CA 91785. Write for information about other issues available.

## Dvorak in the Popular Press

by Phil Davis

The authors of the books *Ghost* and *The Last Train Out* are more than advocates of the better arrangement for keyboards. Both are longtime users and operators of Dvorak-arranged equipment. They know whereof they write.

The Dvorak reference in Piers Anthony's *Ghost* appears in an Author's Note. Anthony dates his switch from two-finger typing on Qwerty to eight-finger work on Dvorak at 1972. *Ghost* is a science fiction novel (published by Tom Doherty Associates, 49 West 24th Street, New York NY 10010).

In *The Last Train Out*, a subhead entitled "The Dvorak Keyboard" introduces a five-page discussion. The author, Gary North (American Bureau of Economic Research, PO Box 8204, Ft. Worth TX 76112), is a muscular writer. He calls the Dvorak advantage tremendous, the Qwerty clumsy and horrible. His opinions on religion and economics, expressed with similar vigor, are less easy to verify. Anyone who applies some perseverance can ascertain for himself that the Dvorak arrangement is the best yet and the best foreseeable.

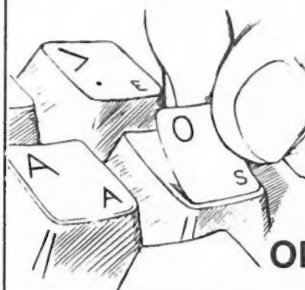
The weak link, according to North, is training. It can be argued that the Smith-Corona *Short Course* is all that is actually required. North, though, says the need is for an electronic or audio-visual training program.

*Phil Davis was the editor and publisher of Quick Strokes, the predecessor to Dvorak Developments. He lives in Sacramento, California.*

## — ANNOUNCING —

### A quick and easy way to convert your Keytops to DVORAK.

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## Bibliographic Notes

+ *Graphic Arts Monthly*, October 1986. Interesting comparison of how the Qwerty keyboard replaced the common (in printer's shops) Linotype keyboard to the way the Dvorak keyboard is starting to replace Qwerty. The article notes that maybe "keyboard operators of the future will gladly forget there ever was a Qwerty in the past as readily as they have forgotten ETAOIN and SHRDLU (the Linotype keyboard)."

+ *Macworld*, October 1986. Short introduction to the Dvorak, followed by detailed instructions on how to convert the Apple Macintosh by yourself. (Happily, the complex instructions are followed by the address for Paragon Courseware, which sells a program to do the same thing for \$35).

+ *The Secretary*, November/December 1986. A major article on the Dvorak is featured in this journal put out by Professional Secretaries International. Written by Randy Cassingham, it is a powerful argument for conversion to Dvorak.

## Free Listing of Dvorak Products

We've compiled a listing of Dvorak products from the pages of *Dvorak Developments*. It's updated whenever a new product comes out. For a free copy, send a self-addressed, stamped business-sized envelope to Dvorak Products, PO Box 1895, Upland CA 91785.

### Dvorak Developments

Post Office Box 1895  
Upland CA 91785

## Classified

Apple IIe (ANSI) Dvorak/QWERTY switch with overlays . . . \$21.95  
Apple IIe, Macintosh (ANSI & ASK) Dvorak overlays . . . \$10.50  
CA residents add 6% sales tax. Call (714) 526-5055 or write to  
FAULTLINE MICRO, P.O. BOX 3147, FULLERTON, CA 92634-3147

MAYBE YOUR LAST CHANCE - SCM #2500 DVORAK TYPEWRITER  
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FREE: Four page set, "Files of Quick Strokes," summarizing contents of the 42 issues, dated 1973 to 1985, of the predecessor to *Dvorak Developments*.  
PHIL DAVIS, 7612 AMHERST ST. #7, SACRAMENTO CA 95832.

